

Amendments to the Claims

This listing of the claims will replace all prior versions and listings of the claims in the application.

Claims 1-74 were originally filed.

Claims 10, 14, 44, 62, 66, and 72 were previously canceled without prejudice.

Claims 5, 53 – 61, 63-65, 67-68, and 70 are currently canceled without prejudice.

No new claims have been added.

Accordingly, claims 1 – 4, 6 – 9, 11 – 13, 15 – 43, 45 – 52, 69, 71, 73, and 74 are pending.

1. (currently amended) A method comprising:
rendering a polygonal mesh to produce a computer-generated image, the image exhibiting aliasing at its discontinuity edges;
sorting the discontinuity edges prior to overrawing; and
overrawing the discontinuity edges as antialiased lines to reduce the aliasing;
identifying sharp edges prior to said rendering; and
finding silhouette edges during runtime, the discontinuity edges being a union of the sharp edges and the silhouette edges.

1 2. (original) A method as recited in claim 1, wherein the polygon mesh
2 comprises a set of triangles.

3 3. (original) A method as recited in claim 1, wherein the image is
4 stored in memory after rendering, and the overdrawing comprises rendering the
5 discontinuity edges as antialiased lines in the memory to reduce the aliasing at the
6 discontinuity edges.

7 4. (original) A method as recited in claim 1, further comprising
8 identifying the discontinuity edges as a collection of silhouettes and sharp edges.

9 5. (canceled)

10 6. (original) A method as recited in claim 1, further comprising shading
11 the discontinuity edges.

12 7. (original) A method as recited in claim 1, further comprising
13 blending selected discontinuity edges.

14 8. (original) A method as recited in claim 1, further comprising
15 orienting the discontinuity edges in a consistent manner.

16 9. (original) A method as recited in claim 1, further comprising
17 asymmetrically blending selected discontinuity edges.

1 10. (canceled)

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3 11. (original) One or more computer-readable media comprising
4 computer-executable instructions that, when executed, perform the method as
5 recited in claim 1.

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7 12. (previously amended) A method comprising:

8 determining discontinuity edges of a polygon mesh by identifying sharp
9 edges during a preprocess prior to rendering the polygon mesh and finding
10 silhouette edges during runtime after rendering the polygon mesh; and
11 overdrawing the discontinuity edges as antialiased lines.

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13 13. (original) A method as recited in claim 12, wherein said determining
14 comprises identifying sharp edges and silhouettes.

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16 14. (canceled)

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18 15. (original) A method as recited in claim 12, further comprising
19 shading the discontinuity edges.

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21 16. (original) A method as recited in claim 12, further comprising
22 blending selected discontinuity edges.

1 17. (original) A method as recited in claim 12, further comprising:
2 asymmetrically blending selected discontinuity edges.

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4 18. (original) A method as recited in claim 12, further comprising:
5 orienting the discontinuity edges in a consistent manner.

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7 19. (original) A method as recited in claim 12, further comprising:
8 sorting the discontinuity edges prior to said overdrawing.

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10 20. (original) One or more computer-readable media comprising
11 computer-executable instructions that, when executed, perform the method as
12 recited in claim 12.

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14 21. (original) In a process for rendering computer-generated graphics, a
15 method comprising:

16 constructing a data structure prior to rendering a polygon mesh; and
17 finding silhouette edges in the polygon mesh during runtime using the data
18 structure; and

19 omitting concave silhouette edges from the data structure.

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21 22. (original) A method as recited in claim 21, further comprising
22 overdrawing the silhouette edges as antialiased lines.

1 23. (original) A method as recited in claim 21, further comprising
2 shading the silhouette edges.

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4 24. (original) A method as recited in claim 21, further comprising
5 blending selected silhouette edges.

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7 25. (original) A method as recited in claim 21, further comprising
8 asymmetrically blending selected silhouette edges.

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10 26. (original) A method as recited in claim 21, further comprising
11 sorting the silhouette edges.

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13 27. (original) One or more computer-readable media comprising
14 computer-executable instructions that, when executed, perform the method as
15 recited in claim 21.

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17 28. (previously amended) In a process for rendering computer-generated
18 graphics, a method comprising:

19 identifying sharp edges prior to runtime;
20 constructing a data structure prior to rendering a polygon mesh;
21 finding silhouette edges in the polygon mesh during runtime using the data
22 structure; and
23 collecting the sharp edges and the silhouette edges in a list of discontinuity
24 edges of the polygon mesh.

1 29. (original) A method as recited in claim 28, further comprising
2 shading the discontinuity edges.

3 30. (original) A method as recited in claim 28, further comprising
4 blending selected discontinuity edges.

5 31. (original) A method as recited in claim 28, further comprising
6 asymmetrically blending selected discontinuity edges.

7 32. (original) A method as recited in claim 28, further comprising
8 sorting the discontinuity edges.

9 33. (original) One or more computer-readable media comprising
10 computer-executable instructions that, when executed, perform the method as
11 recited in claim 28.

12 34. (original) A method comprising:
13 rendering a polygonal mesh;
14 determining discontinuity edges of the polygon mesh;
15 sorting the discontinuity edges according to visibility; and
16 overdrawing the discontinuity edges in an order resulting from said sorting.

17 35. (original) A method as recited in claim 34, wherein said determining
18 comprises:
19 identifying sharp edges prior to said rendering; and

1 finding silhouette edges during runtime, the discontinuity edges being a
2 union of the sharp edges and the silhouette edges.

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4 36. (original) A method as recited in claim 34, wherein said sorting
5 comprises sorting the discontinuity edges according to depth.

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7 37. (original) A method as recited in claim 34, wherein said overdrawing
8 comprises overdrawing the discontinuity edges as antialiased lines.

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10 38. (original) A method as recited in claim 34, further comprising
11 shading the discontinuity edges.

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13 39. (original) A method as recited in claim 34, further comprising
14 blending selected discontinuity edges.

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16 40. (original) A method as recited in claim 34, further comprising
17 asymmetrically blending selected discontinuity edges.

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19 41. (original) A method as recited in claim 34, further comprising
20 orienting the discontinuity edges in a consistent manner.

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22 42. (previously presented) One or more computer-readable media
23 comprising computer-executable instructions that, when executed, perform the
24 method as recited in claim 34.

1 43. (previously amended) A method comprising:
2 rendering a polygonal mesh;
3 identifying one or more silhouette edges of the polygon mesh for a given
4 viewpoint by constructing a data structure prior to rendering the image and finding
5 the silhouette edges during runtime using the data structure;
6 storing the silhouette edges in an output list; and
7 overdrawing the silhouette edges as antialiased lines.

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9 44. (canceled)

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11 45. (original) A method as recited in claim 43, further comprising
12 shading the silhouette edges.

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14 46. (original) A method as recited in claim 43, further comprising
15 sorting the silhouette edges prior to said overdrawing.

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17 47. (original) One or more computer-readable media comprising
18 computer-executable instructions that, when executed, perform the method as
19 recited in claim 43.

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21 48. (original) A method comprising:

22 A. during a preprocess phase, performing the following:

23 identifying sharp edges present in a polygon mesh used to generate a
24 graphical image;

- 1 1. (original) A method for rendering a polygonal mesh, comprising:
2 1. identifying silhouette edges that occur from a given viewpoint of the
3 2. during the runtime phase, performing the following:
4 rendering the polygonal mesh to produce a rendered image;
5 identifying silhouette edges that occur from a given viewpoint of the
6 rendered image using the data structure, the silhouette edges together
7 with the sharp edges forming a set of discontinuity edges;
8 shading the discontinuity edges;
9 sorting the discontinuity edges; and
10 overdrawing the discontinuity edges as antialiased lines.
- 11
- 12 49. (original) A method as recited in claim 48, wherein the sorting
13 comprises sorting the discontinuity edges according to depth.
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- 15 50. (original) A method as recited in claim 48, wherein the shading
16 comprises asymmetrically shading the discontinuity edges.
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- 18 51. (original) A method as recited in claim 48, wherein the shading
19 comprises applying blending processes that balance temporal smoothness and
20 spatial sharpness.
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- 22 52. (original) A method as recited in claim 48, wherein the shading
23 comprises orienting the discontinuity edges in a consistent manner.
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53 - 68. (canceled)

69. (currently amended) One or more computer-readable media comprising computer-executable instructions that, when executed, direct a graphics computing device to:

render a polygonal mesh;

detect discontinuity edges in the polygon mesh;

sort the discontinuity edges according to depth; and

overdraw the discontinuity edges as antialiased lines to reduce the aliasing;

identify sharp edges prior to rendering the polygon mesh; and

find silhouette edges after rendering the polygon mesh, the discontinuity edges being a union of the sharp edges and the silhouette edges.

70. (canceled)

71. (original) One or more computer-readable media as recited in claim 69, further comprising computer-executable instructions that, when executed, direct the graphics computing device to shade the discontinuity edges.

72. (canceled)

73. (original) One or more computer-readable media as recited in claim 69, further comprising computer-executable instructions that, when executed, direct the graphics computing device to:

orient the discontinuity edges in a consistent manner; and

1 blend the discontinuity edges using asymmetric blending.

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3 74. (previously presented) A system comprising:

4 means for identifying sharp edges present in a polygon mesh;

5 means for rendering the polygonal mesh to produce a rendered image;

6 means for identifying silhouette edges that occur from at least one

7 viewpoint of the rendered image;

8 means for shading the sharp edges and the silhouette edges;

9 means for sorting the sharp edges and the silhouette edges; and

10 means for overdrawing the sharp edges and the silhouette edges as

11 antialiased lines.

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